ABSTRACT

The invention relates to a control method and a control system for a motor. The control method comprising the steps of: (a) determining a motor parameter; (b) providing a d-axis reference current and a q-axis reference current; (c) detecting actual currents of the motor and converting to a d-axis actual current and a q-axis actual current; (d) calculating a d-axis counter electromotive force and a q-axis counter electromotive force at a sample period according to the motor parameter, the d-axis actual current and the q-axis actual current at the sample period, the d-axis actual current and the q-axis actual current at a last sample period, and a d-axis voltage and a q-axis voltage at the last sample period; and (e) calculating a d-axis voltage and a q-axis voltage at the sample period according to the motor parameter, the d-axis actual current and the q-axis actual current at the sample period, the d-axis reference current and the q-axis reference current at a next sample period, the d-axis counter electromotive force and the q-axis counter electromotive force at the sample period. According to the control method of the invention, the d-axis voltage and the q-axis voltage are calculated and converted to three phase control voltages. The three phase control voltages are processed to control the motor. The control method of the invention not only preserves the merit of constant switching frequency of the convention PI-PWM control system, but also can eliminate the motor current phase-lag problem of the convention PI-PWM control system. Also the control method of the invention will have the following characteristics and economic advantages such as high accuracy, fast response, low cost and robustness etc.